Exhibit A

Intergovernmental Agreement for testing paper millings

Scope of Work

Phase I-Testing structural and other properties of paper millings with polymer-based admixtures

Overview

In 2012 the City of Flagstaff partnered with Northern Arizona University (NAU) College of Engineering, Forestry, and Natural Sciences (CEFNS) Capstone Design 4 Practice (Capstone) in successfully developing a mix design for the implementation of paper millings (PPS) as a component of a landfill cap. The City is seeking further to assistance from CEFNS to determine the structural and physical properties of alternative materials incorporated with elastic polymer-based admixtures.

Incorporating polymers in alternative materials such as PPS may have the potential to mimic impermeable properties exhibited by a typical Flexible Membrane Liner (FML). If the project were to successfully mimic a hydraulic barrier, this project is likely to become part of a long-term effort that could be noteworthy in both academia and the solid waste industry.

The 2012 report indicates the optimal PPS mixtures (by weight) for a hydraulic barrier included the following:

Mixture 1) 50% PPS and 50% Coal Ash

Mixture 2) 43.3%PPS, 43.3% Coal Ash, and 13% Wood Ash

Mixture 3) 48% PPS, 48% Coal Ash, and 4% Wood Ash

Mixture 2 exhibited the optimal values for gas permeability, liquid permeability, unconfined compression, shear strength, plasticity, PPS volume, and material costs.

The City is proposing that additional testing be completed on Mixture 2 with different concentrations of polymer. This will provide additional enhancements to both the hydraulic barrier on the landfill cap and liner.

Subsequent to testing, an optimal mixture will be evaluated in the lab for its ability to withstand leachate interaction. This work will likely be explored in future phases with other NAU departments.

Scope of Work

The three mixtures from the 2012 study shall be re-tested in accordance with the methods as described by the American Society of Testing and Materials (ASTM):

- Structural Atterberg Limits
    - Water Content (ASTM 2216 “Water Content of Soil & Rock by mass”)

    - Proctor Compaction Tests (ASTM D698 “Laboratory Compaction Characteristics of Soil Using Standard Effort”)
    - Consolidation (ASTM D2435/D2435M-11 “One-Dimensional Consolidation Properties of Soils Using Incremental Loading”)
    - Specific Gravity (ASTM D854-10 “Specific Gravity of Soils by Water Pycnometer”)
    - Porosity (ASTM D7263-09 “Laboratory Determination of Density (Unit Weight) of Soil Specimens”)
    - California Bearing Ratio (ASTM D1883-07e2 “CBR of Laboratory-Compacted Soils” and ASTM D4429-09a “CBR of Soils in Place”)
    - Shear Strength (ASTM D5321 Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear)
- Other tests
    - Gas Permeability (method described in the 2012 report)
    - Liquid Permeability (method described in the 2012 report)
    - Organic Content (ASTM 2974-14 Standard Test Methods for Moisture, Ash, and Organic Matter)

Subsequent to testing the three mixtures, results will be compared with the 2012 findings. The optimal mixture will be blended with a range of polymers (provided by the City of Flagstaff). The test ranges should be established in 0.5% increments, from a minimum of 0.5% to a maximum of 5% by weight (10 total).

Expected Benefits

- The project will allow the City of Flagstaff to explore the resources already located on-site for their use as an alternative cap and liner.
- The project strengthens a partnership that has already been established between NAU CENS and the City of Flagstaff.
- The findings could provide motivation for the solid waste industry to propose solutions to otherwise expensive means of constructing landfills.
- The ability for NAU-CENS to work with the City on this project in an iterative fashion provides both organizations the opportunity to explore landfill design variations with sound methodologies.

Objectives

1. Evaluate alternative methods of landfill construction, while providing sustainable and financially viable means of disposal
2. Model the structural characteristics of the alternative cap material

Budget

NAU CENS requests the amount of $23,878.54 from the City of Flagstaff to complete Phase I of testing.